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### REMARKS

Claims 1-25 have been amended. Claims 1-30 are pending in the application and under consideration.

The specification has been amended to correct an obvious error and informality. Specifically, paragraph 15 has been amended to correct a typographical error in which the word "intramolecular" was inadvertently used rather than the word "intermolecular." Paragraph 45 has been amended to delete the reference to claim 27 and insert the referenced subject matter from claim 27.

### Informalities Noted By The Examiner

Applicants appreciate the Examiner's careful review of the claims and have amended claim 14 to correct the spelling of "N-hydroxysuccinimidyl."

### Rejections Under 35 U.S.C. §112, First Paragraph

Claims 1-30 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Examiner has objected to the expression "polymer network" on grounds that the specification does not provide a definitive description of the term. The Examiner has also objected to the claims on grounds that the specification is not enabled with respect to compounds without lipid components, because "it is not clear that the compounds would function for the intended purpose of the invention." The Examiner has also rejected the claims on grounds that there is not enablement for the case wherein the intradendritic cross-linking occurs prior to the attachment of the segments containing acetylenic moieties to the dendritic polymers.

Claim 1 has been rewritten without use of the term "polymer network," thus, overcoming the rejection based on an alleged lack of definitive description for the term.

Applicants request reconsideration of the Examiner's rejection based on lack of enablement for compounds without lipid components. It is respectfully submitted that the key features of the invention involve the use of dendritic polymers that are capable of having a high surface density of functional groups which can be utilized for providing a high surface density of sensory groups, in combination with intermolecular cross-linking of the dendritic polymers

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with moieties having alternating conjugated double and triple bonds that facilitate a highly sensitive and easily detectable colorimetric response to specific binding of the sensory groups with an analyte. These two important features of the invention are not dependent upon the presence or absence of lipid components. There is nothing either in Applicants disclosure or the relevant literature that would suggest that lipid components are necessary or essential. To the contrary, those having ordinary skill in the art would understand that the utility of the invention resides in the combination of the use of sensory group bearing dendritic polymers cross-linked with moieties having alternating conjugated double and triple bonds, and that generally any linking moiety between the alternating conjugated double and triple bonds and the dendritic polymer would be suitable. Accordingly, withdrawal of the rejection is reasonable and appropriate.

The Examiner has admitted that there is enablement for the preparation of a compound wherein acetylenic group-containing components attached to the dendritic polymers are intermolecularly polymerized after their attachment to the individual dendritic polymers. As long as the specification discloses at least one method for making and using the claimed invention that bears a reasonably correlation to the entire scope of the claim, then the enablement requirement is satisfied. *In Re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). Failure to disclose other methods by which the claimed invention may be made does not render a claim unpatentable. *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1533, 3 USPQ2d 1737, 1743 (Fed. Cir.), *cert. denied*, 484 U.S. 954 (1984). Please refer to MPEP Section 2164.01(b) for additional guidance.

In view of the above amendments and remarks, it is believed that the claims meet the written description and enablement requirements of 35 U.S.C. §112, first paragraph.

#### Rejections Under 35 U.S.C. §112, Second Paragraph

Claims 1-30 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. As before, the Examiner has indicated that the term "network" is unclear because the required structure is undefined. This rejection has been overcome by amending the claims to delete the term "network."

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The Examiner has stated that claim 1 is indefinite because it is unclear what is meant by the term "cross-linking segments of alternating conjugated double and triple bonds." Applicants request that the Examiner reconsider in view of the disclosure at paragraph 5 (page 2) of the specification and Fig. 1, which clearly show what is meant by the expression "alternating double and triple bonds." The Examiner has also specifically stated that the terminology would include the presence of aromatic rings for which there is no enabling written disclosure in the specification. In order to overcome this specific basis for rejection claim 1 has been rewritten to require cross-linking using "a linear moiety having alternating conjugated double and triple bonds." It is believed that a linear moiety excludes the possibility of aromatic rings.

Claim 1 has also been rejected as being indefinite because it recites "a dendritic polymer network compound" but does not require a dendritic polymer as a component. In order to overcome this basis for rejection, claim 1 has been amended to require dendritic polymer blocks that are intermolecularly cross-linked. It is believed that it will be evident to those having ordinary skill in the art that the expression "dendritic polymer blocks," which is supported in the "Summary Of The Invention," will be understood by those having ordinary skill in the art to mean the component of a cross-linked network that was a dendritic polymer molecule prior to cross-linking.

Claims 10-12 have been amended to eliminate "a dendritic segment" and replace it with the expression "dendritic polymer block," which has antecedent basis in claim 1.

Claims 25-30 have been rejected as being incomplete for omitting essential steps. The essential steps identified by the Examiner have been added to claim 25 in order to overcome the rejection.

Claim 25 has also been amended to delete the expression "a chemical and/or biological sensing material" and replace the term with the expression "a cross-linked dendritic polymer of claim 1," which has antecedent basis in claim 1.

Finally, claim 13 has been amended to make it clear that the "R" group is a sensory group.

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It is respectfully submitted that the amended claims are in compliance with the requirements of 35 U.S.C. §112, second paragraph and notice of the same is requested.

#### Nonstatutory Double Patenting Rejection

Claims 13-16 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 9-29 of copending Application No. 10/068,378.

Applicants will respond to an obviousness-type double patenting rejection in the event that claims 1-7 and 9-29 of the 10/068,378 application are patented.

#### Rejections Under 35 U.S.C. §102(b)

Claims 13, 15 and 16 have been rejected under 35 U.S.C. §102(b) as being anticipated by each of Lee et al. (Polymer Preprints (2002), 32 (2), p. 450), Sui et al. (Colloids and Surfaces A: Physiochemical and Engineering Aspects 171 (2000), pp. 185-197) or Balough et al. (Macromolecules (1999), 32, pp. 1036-1042). According to the Examiner, "Each of the references describes a diacetylene functionalized dendritic compound obtained by reaction of a dendritic polymer with a diacetylene reagent which anticipates the compounds of instant claims 13, 15 and 16."

The claims have been amended to overcome the rejection by requiring that the "R" group is a sensory group. None of the prior art references expressly teach or suggest the claimed compound which is the reaction product of a dendritic polymer and a diacetylene reagent having a terminal sensory group.

#### Rejection Under 35 U.S.C. §103

Claim 14 has been rejected under 35 U.S.C. §103(a) as being unpatentable over each of Lee et al., Sui et al. or Balough et al.

It is respectfully submitted that dependent claim 14 is allowable for at least the reasons set forth above with respect to independent claim 13.

Claims 1-12 and 17-30 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Sui et al. The Examiner has admitted that the Sui et al. reference does not specifically address the presence of any terminal biomolecules on their dendritic polymer-

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diacetylene conjugates. Thus, the Sui et al. references does not disclose the claimed invention requiring "at least sensory group covalently bonded directly to the dendritic polymer block or bonded indirectly to the dendritic polymer block through a spacer moiety." However, the Examiner has stated that the Sui et al. reference suggests the claimed invention because Sui et al. state in the "Introduction" as follows:

Dendrimers representing new class of synthetic macromolecules characterized by a regularly branched tree like structure. Recently the dendritic structures have attracted increasing attention for their potential applications in molecular recognition, building blocks for self assembly process, catalysis, encapsulation and controlled release, chemical sensors, biomimetic materials, metal nanoclusters and so on.

The above quotation is not a teaching or suggestion for the claimed invention. The quotation does not even refer to possible applications for dendritic polymer blocks intermolecularly cross-linked by a linear moiety having alternating conjugated double and triple bonds, but instead more generally refers to potential applications for dendrimers. The fact that dendrimers have been recognized to have potential applications in a variety of different fields does not suggest that dendritic polymer blocks intermolecularly cross-linked by a linear moiety having alternating conjugated double and triple bonds has potential applications in any or all of the disclosed fields. Further, a recognized potential for any particular technology is a recognized need for further development and testing to determine whether and how dendrimers can be synthesized and/or modified and/or combined with other materials to render a useful result for a particular application. Identifying potential applications for a broad class of materials is in fact an admission that the specific materials needed for the particularly identified applications do not yet exist and are not obvious. The Sui et al. references does not provide any specific guidance for the claimed invention, and does not provide a reasonable expectation of success without considerable experimentation and development. It is only by reference to the Applicants' specification that one could look to the Sui et al. reference and understand the relationship between chemical sensors and dendritic polymer blocks intermolecularly cross-linked by a linear moiety having alternating conjugated double and triple bonds. Thus, the rejection is based on a hindsight reconstruction of the claimed invention from the Applicants' own disclosure. This is evident from the fact that Sui et al.

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does not teach or suggest how dendritic polymer blocks intermolecularly cross-linked by a linear moiety having alternating conjugated double and triple bonds could be used in the other listed applications including molecular recognition, building blocks for self assembly process, catalysis, encapsulation and controlled release, biomimetic materials and metal nanoclusters. However, if these other things are also invented, it will also seem, in hindsight, that Sui et al. rendered such inventions obvious. However, this is clearly not the case. A mere invitation for further experimentation and development is insufficient to meet the basic requirements of a *primary facie* case of obviousness, since there is not any suggestion or motivation for the specifically claimed invention, and an absence of any reasonable expectation of success.

#### CONCLUSION

In view of the above amendments and remarks, it is respectfully submitted that the application is in condition for allowance and notice of the same is earnestly solicited.

Respectfully submitted,

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Date



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